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Improving the Quality, Capacity and Compliance of Environmental Licensing Processes in Mozambique: The Case of the Oil and Gas Industry

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ABSTRACT

This paper analyses the current situation regarding the environmental licensing of the oil and gas industry in Mozambique. The paper outlines weaknesses in the process, including the quality of the environmental impact assessments submitted for authorisation; compliance with the approved environmental management plans; and the lack of transparency and follow-up post-licensing. While some legislative recommendations will be made, the main purpose of this paper is to outline specific proposals on how to improve the quality of the environmental and social impact processes without resorting to additional legislative changes.

Given the need for greater capacity in governmental bodies, growing concern in Mozambican society over the lack of transparency and responsiveness of the large investment projects, and the need for the projects themselves to improve their social licence to operate, only a few mechanisms, if put in place, could almost immediately increase the quality of the environmental and social impact studies, increase society's trust in those studies, broaden their scope to extend to the implementation phases, and help regulating ministries to build capacity.

It is argued that, taken together, the implementation of peer review systems for environmental and social assessments, the use of expert technical councils to accompany the implementation of both the assessment and the project itself, and the addition of biodiversity offsets to the current mitigation procedures, would mean a vast improvement in the quality, effectiveness and impact of Mozambique's environmental licensing procedures. These improvements would create a win-win situation for companies, government, communities and civil society by, for example, nurturing the social licence to operate, minimising corporate and reputational risks, and adhering to a set of best practice requirements from companies' financial investors.

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ABBREVIATIONS AND ACRONYMS

EIA	environmental impact assessment
EMP	environmental management plan
ETC	expert technical council
IFC	International Finance Corporation
INP	National Petroleum Institute
MICOA	Ministry for the Co-ordination of Environmental Affairs (Ministério para a Coordenação da Acção Ambiental)
NORAD	Norwegian Agency for Development Co-operation
SLO	social licence to operate
tcf	trillion cubic feet
TOR	terms of reference

INTRODUCTION

Although petroleum exploration activities have taken place in Mozambique for more than a century,¹ recent discoveries have overturned the established dynamics. While commercial quantities of oil have not yet been found in the country, natural gas reserves of more than 125 trillion cubic feet (tcf) have been discovered in the Rovuma Basin since 2010, with the expectation that a further 148 tcf will still be found.² According to the country's Gas Master Plan, the gas industry could add a total average value to the gross domestic product (GDP) ranging from \$14 billion to \$22 billion a year,³ an enormous change in a country whose total GDP was only \$9.6 billion in 2010.⁴

At a time of such heady expansion the country needs to take care to protect its natural resource bases. Over 70% of the population depend on subsistence agriculture and fisheries,⁵ which are vulnerable to damages from oil and gas exploration. In order to protect these resources and the people who depend on them, safeguards – based on national legislation as well as international best practice – need to be put in place before exploration takes place.

This paper analyses the current situation regarding the environmental licensing of the oil and gas industry in Mozambique, highlighting several weaknesses in the process. While some legislative recommendations will be made, the main purpose is to outline three specific proposals on how to improve the quality of the environmental and social impact processes without additional legislative changes.

Given governmental bodies' need for greater capacity, the growing concern in Mozambican society over the lack of transparency and responsiveness of the large investment projects, and the need for the companies themselves to improve their social licence to operate (SLO), a few mechanisms can almost immediately increase the quality of the environmental and social impact studies, increase society's trust in those studies, broaden their scope to extend to the implementation phase, and help the regulating ministries to build capacity.

Implementing peer reviews for environmental and social assessments, putting in place expert technical councils (ETCs) to accompany the implementation phase, and adding biodiversity offsets to the current mitigation procedures could give a significant boost to the quality, effectiveness and impact of the environmental licensing procedures, to the advantage of companies, government, communities and civil society.

ENVIRONMENTAL LICENSING PROCESS IN MOZAMBIQUE FOR OIL AND GAS PROJECTS

The regulatory framework for the environmental licensing of the petroleum industry in Mozambique consists of national legislation and a number of international conventions to which Mozambique is party. A full outline of this legislation is beyond the scope of this paper, and can be found in any of the recent environmental impact studies⁶ performed. However, a brief outline should be made of two key pieces of legislation – the Environment Law no. 20/97 of 1 October, and the Environmental Regulations for Petroleum Operations, decree no. 56/2010 of 22 November.⁷

Before going into any details, it is important to recognise that in Mozambique, the environmental impact assessment (EIA) process is in fact an environmental and social impact assessment. This is a critical addition, as it broadens the scope of the process and, as a result, no separate social impact assessments are mandated by law.

According to the country's Environment Law, all projects liable to have a significant environmental impact must be issued a licence by Mozambique's Ministry for the Co-ordination of Environmental Affairs (MICOA), which must be based on the results of an EIA. A key provision here is that the 'environmental licence is a prerequisite to the issuance of any other licence which may be legally required in each case',⁸ which provides a seemingly strong framework for protecting the environment. A further important provision is found in the general principles section of the Environment Law, which enshrines the principle of '[r]esponsibility, on the basis of which whoever pollutes or in any way degrades the environment shall always have the obligation to repair or compensate [for] the resulting damage'.⁹ To date this principle has rarely been upheld, hence the need to revise these environmental processes, thus ensuring their effective implementation.

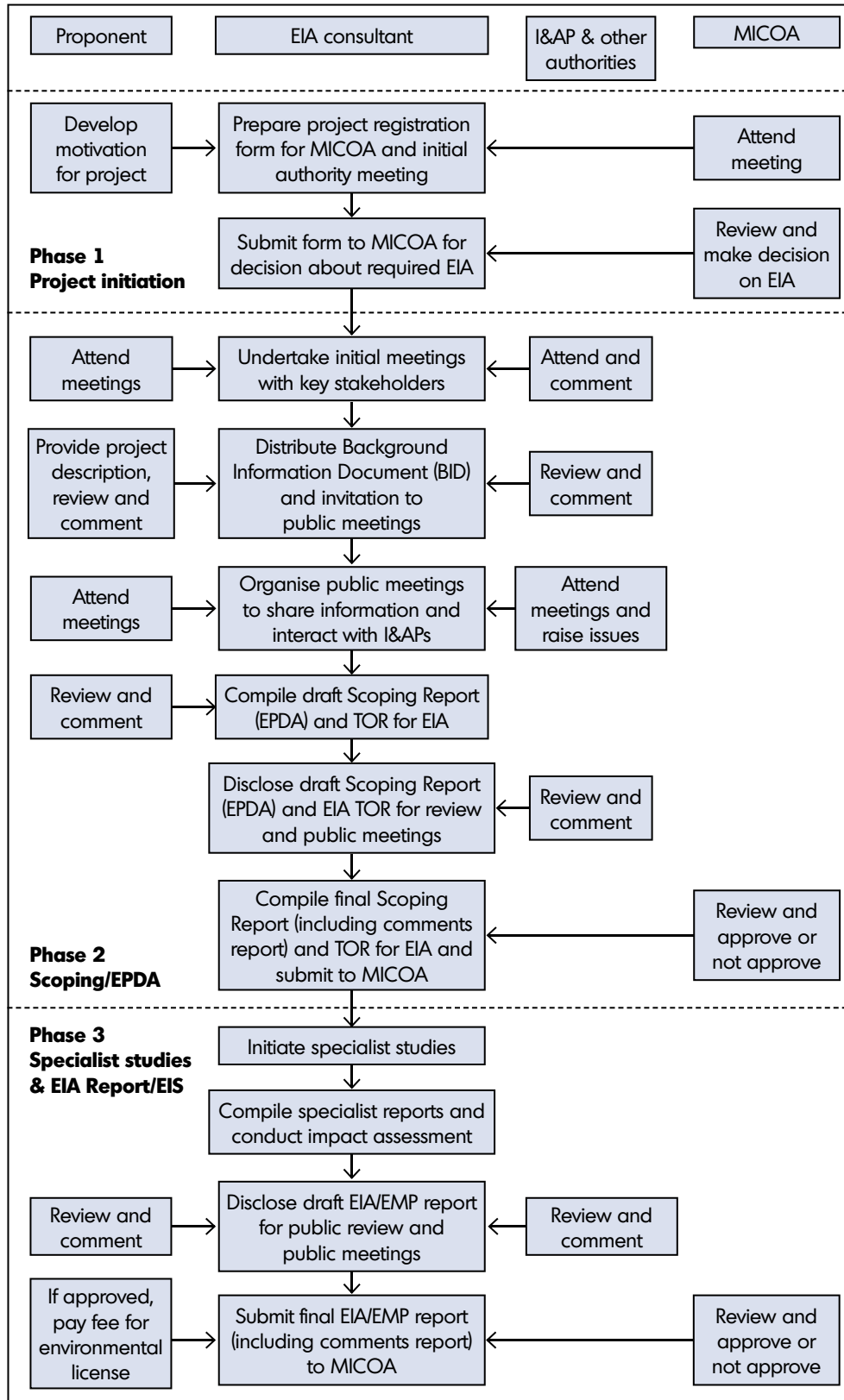
The specific environmental regulations for petroleum operations provide the overall framework for the licensing process. The regulations authorise MICOA to categorise the project as either A, B or C, with the larger projects all being Category A and thus subject to a full EIA as outlined in Figure 1, which delineates the responsibilities of the key agencies. A provision for public consultations is also built into these regulations, permitting the public and affected parties an opportunity to receive information about proposed projects, which in turn allows them to try to influence the process.

WEAKNESSES OF THE CURRENT SYSTEM

The legal framework regulating petroleum operations has been the subject of various studies,¹⁰ which have highlighted a number of shortcomings. At the same time the government has been making an effort to improve and update legislation with, for example, new regulations on petroleum operations in 2004,¹¹ new regulations on petroleum taxes in 2008,¹² a policy on concessions in new areas in 2009,¹³ the environmental regulations for the oil and gas sector in 2010 (as described above), and new versions of the mining and petroleum laws expected in 2013, along with the Gas Master Plan and other more strategic documents. While various weaknesses still exist, some of which will be mentioned below, the main purpose of this paper is not to focus on improving legislation but rather to concentrate on improving the implementation of the existing laws and regulations.

This paper will highlight three weaknesses in the implementation process, and propose measures to overcome them. By no means a comprehensive solution to all the weaknesses present in the system, the paper focuses on and suggests solutions to a small but important sub-set of those deficiencies, where the solutions are practicable, possible within the current legislation, and realistically implementable in the national context. These three weaknesses are the quality of the EIAs produced and submitted for authorisation; compliance with the approved environmental management plans (EMPs); and the lack of transparency of and follow-up to the process post-licensing.

Figure 1: Typical process of an environmental impact assessment



Source: Liquefied Natural Gas Project in Cabo Delgado Pre-Feasibility and Scope Definition Report and Terms of Reference. Impacto Projectos e Estudos Ambientais Lda, 2011

All of these weaknesses are related to the present capacity of MICOA. The oil and gas sector is relatively new in Mozambique, although there has been activity in this field for several decades. Until the recent finds in the Rovuma basin, the petroleum sector has been small and of limited interest. As an analysis done by the Norwegian Agency for Development Co-operation (NORAD) concluded in 2009, 'It is apparent from interviews that most stakeholders regard MICOA's capacity to handle environmental issues within the petroleum sector as very weak and clearly insufficient. In particular, there is a need for increased capacity with respect to the processing and general follow-up of EIAs.'¹⁴ The country's own Gas Master Plan also highlights this issue, with one of the recommendations being the need to 'strengthen the Government of Mozambique's capacity to enforce Environmental and Social Management Plans agreed with private investors'.¹⁵ As a result of this analysis, the Norwegian government has made a specific goal of improving MICOA's capacity in terms of petroleum issues. This is beginning to have some impact, and one technician has now been fully trained abroad to a Master's degree level in the environmental management of petroleum issues, and several others have completed short courses on aspects of the industry. However, this is still a very small pool of skilled technicians, and probably inadequate for the task at hand. Recognising this, MICOA has set up a partnership with the Netherlands Commission for Environmental Assessment (MER), which provides some technical backstopping, but much more still needs to be done.

EIA quality

As a result of this institutional weakness, in practice the quality of the EIA process ends up depending heavily on the project developer. In theory, of course, the EIA is prepared by a neutral third party, which is selected from a list of EIA companies approved by MICOA. The EIA process is accompanied by both the developer and MICOA, with MICOA having the ultimate say in whether or not the study is of an acceptable quality and provides realistic and effective mitigation measures for the main impacts foreseen. However, given the lack of specific technical capacity at MICOA to evaluate the industry, as well as the fact that the documents are often several thousand pages long, the amount of detailed oversight is less than optimal.

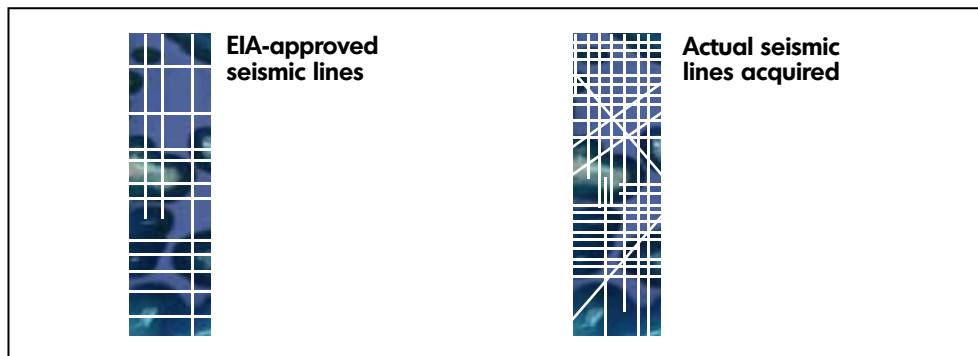
Even with this weakness the EIAs that are being produced by the oil and gas companies have generally been of reasonable quality, although this varies from company to company. This can in part be ascribed to the fact that companies are legally required to make the draft versions public,¹⁶ open for consultation and appraisal by a wide variety of third parties, both in-country and internationally. Most EIAs conducted in the Rovuma Basin have done a good job in identifying the potential and probable impacts of each of the phases of development, as well as identifying the international norms and standards that need to be applied on top of national legislation. Where they fall short is mostly in the prescribed mitigation measures, which are often unrealistic or impossible to achieve, and some have overlooked and downplayed certain risks where effective mitigation measures would have been costly. The other weak points of the vast majority of EIAs being produced are the limited degree to which they consider indirect impacts and almost always ignore cumulative impacts.

In all cases though, given the preponderance of developers' views in the EIA documents, there is a strong sense among external stakeholders that the documents reflect principally the company's opinion, and are not neutral technical analyses. Trust is sorely lacking, and without trust, the development will suffer a lack of legitimacy from the very beginning.

Implementation of environmental management plans (EMPs)

A second shortfall relates to the issue of compliance with the EMP. Here the situation is significantly worse. Legally, the process is conducted at arm's length from the developer, with an independent third party once again being chosen to monitor the process. However, in this phase oversight from both the ministry and others is substantially weaker. Unlike the EIA phase, Mozambican legislation does not require public presentations or consultations on the company's compliance with the approved EMP, nor are the monitoring reports made public, which makes it difficult to discover what has in fact taken place. It is the responsibility of MICOA to ensure that the EMP has been implemented and complied with. However, with few resources to go to the field to verify the work and few qualified technicians to review the EMP reports, this part of the process is almost completely dependent on the desire (or lack thereof) of the relevant company to comply with legislation. A clear example can be seen in Figure 2, which depicts a recent seismic acquisition process and shows the divergence between the approved plans and the actual activities carried out.

Figure 2: Environmental monitoring plans: plans vs. reality



Source: EIA-approved lines from company EIA submission, Maputo, November 2008. Actual seismic lines were privately acquired by the author

As can be seen, the density of seismic acquisition in this case was approximately five times greater than what was approved by MICOA. However, no sanctions were applied against the company, perhaps because the Ministry never received the final map of actual seismic lines from the company or failed to compare it with the originally approved plan, or perhaps even less transparent processes were in play.¹⁷

An additional weakness is that companies can alter EMPs behind closed doors by making a simple submission to MICOA. In a more public case, one oil company requested an update of its EMP in 2011 in order to acquire further seismic data. This request pointed out that the company was no longer honouring its earlier commitments (and previous EMP) to avoid shooting seismic data in the whale migration season, and would shoot seismic at night. However, although meetings were held with certain stakeholders, the comments made at these meetings were largely ignored by the company, and the EMP update request was approved without any apparent objections by the Ministry.¹⁸

Other activities in the field during EMP implementation have also been challenged by civil society. Several independent reports¹⁹ have drawn attention to deficiencies in the companies' following through on their planned communication, as well as to significant environmental impacts that otherwise passed unnoticed. However, these reports have suffered from a lack of sufficient resources, with one of the most critical studies being conducted only after the seismic activity being monitored had ended, leading to the companies involved rejecting their findings.

Lack of transparency and poor follow-up of the process post-licensing

The final major shortcoming is the lack of transparency in the post-approval processes. As mentioned, the law enshrines public consultation processes both when developing the initial scoping study and terms of reference (TOR) for the EIA and on the final EIA document itself,²⁰ and the Land Law requires that community consultations be done before a land title can be given.²¹ All of these obligatory consultation processes precede the authorisation and thus the onset of economic activities. Once the activities have begun, however, there are no provisions for public consultation about how the activities are being implemented. Very little scope exists for probing whether or not all the proposed measures have been implemented and whether they are sufficient, or indeed making any comparisons between projected and real impacts and the possible need for readjusting the EMP. Communities, civil society, academics and others have no formal mechanisms to participate in discussions with the companies once the licensing process has ended. All of this follow-up is delegated to MICOA and the regulating agency, the National Petroleum Institute (INP). Given the weaknesses already explored, it is extremely unlikely that MICOA can fulfil this role without assistance.

BUSINESS: THE CASE FOR IMPROVEMENT

Although a permissive environment with lax enforcement may at first seem attractive to many companies, there is in fact a strong case to be made to improve this situation. The main elements of this case are that of nurturing the SLO, minimising business risks, and meeting companies' obligations to their financing institutions.²²

The Social Licence to Operate (SLO) refers to the acceptance within local communities of both mining companies and their projects. Social acceptance is granted by all stakeholders that are or can be affected by mining projects (e.g. local communities, indigenous people) and other groups of interests (e.g. local governments, NGOs).

The SLO is not automatically given with the formal and legal licences to operate, and needs to be carefully cultivated by each individual company. While various aspects of the SLO will vary according to circumstances, it is based on legitimacy, credibility and trust.²³ Companies can only create this social licence by increasing the participation of local people, the transparency of the licensing process, and the levels of trust in the reports and solutions proposed.

Even on a purely economic basis, however, it is highly advisable that companies improve the quality and transparency of their operations. Mozambique is generally described as a politically stable country. However, there is also an undercurrent of unrest and discontent. In September 2010, there were riots in the capital over rising bread and transport prices, and in 2013 the country saw a wave of armed attacks on police and civilian transport in the centre of the country by the former rebel forces of Renamo (the Mozambican National Resistance).²⁴ These events reflect underlying social and political tensions as inequality grows and the proceeds from the much-trumpeted growth of the last decade are unevenly distributed in favour of the elite. The large investments the country is seeing, although not yet producing much in the way of revenue, have heightened the sense of abandonment among the general population. This has been reflected in the analysis of some international agencies. The Centre for International Development and Conflict Management, for example, in 2012 gave Mozambique a higher probability of instability than even Chad and Zimbabwe, ranking it 14th on its global chart.²⁵

Large companies will not be immune from either the repercussions of this discontent or the costs of responding to it. Conflict is expensive, and further instability will increase their financial burden. 'Significant costs to companies relate to disruptions to production, lost opportunities, and the amount of staff time spent managing existing or escalating conflict.'²⁶ In 2013, the engineering and construction company Kentz ran into difficulties regarding worker and community discontent in Nampula. In February, an Irish staff member was killed for the wage money he was carrying,²⁷ and in April the company had to fly in riot police from the provincial capital ahead of a strike threatened by local workers.²⁸ Vale, a Brazilian mining company operating in Tete Province, has faced regular interruptions to its railway line to the port, mostly caused by resettled communities unhappy with conditions in the areas where they have been relocated.²⁹ In the wake of recent violence Rio Tinto has sent all accompanying families home,³⁰ a strong statement on the immediate impact of unrest.

While the costs of these specific incidents have not been published, they are obviously significant and must act as a warning to the petroleum industry, currently in the process of making substantial physical investments in the country. The Liquefied Natural Gas (LNG) plant being proposed for the district of Palma near the Tanzanian border is a long-term investment, involving resettlement and massive infrastructure expenditure. The costs of underestimating unstable social dynamics can be very high. In Palma, some public consultations on resettlement have already proved contentious, at least one of which 'degenerated into a shouting match'.³¹

A final economic issue companies need to consider is their obligations to their financial backers. Increasingly, major financial institutions are adhering to a set of best practices for their large institutional clients. Standards on social and environmental behaviour such as those of the International Finance Corporation (IFC) are being ever more widely applied to lenders. Commercial banks are also joining public-money financiers in demanding

higher standards. There are, for example, currently 79 member institutions of the Equator Principles,³² which were updated in June 2013 to expand their scope and bring them in line with the 2012 IFC principles. The Equator Principles secretariat states that these institutions now supply 'over 70 percent of international project finance debt in emerging markets'.³³ The LNG plant in Mozambique will have financing from an Equator bank.³⁴ These standards do matter. The end result is that simply following Mozambique's national legislation is unlikely to guarantee that companies will be able to fulfil their obligations to lenders. In the author's view, this is a very positive aspect, allowing Mozambique to benefit from cutting-edge best practices even where national legislation lags behind.

GOVERNMENT: THE CASE FOR IMPROVEMENT

For the Mozambican state, the current explosion of interest in the country's extractive sector has meant an enormous increase in both the quantity and the technical complexity of licensing projects.

From a quantity perspective, the extractive sector has increased exponentially. According to a recent study completed for the Ministry of Mineral Resources, the investment in mining exploration increased from approximately \$50 million in 2004 to \$800 million in 2010, while investment in hydrocarbons increased from \$15 million to over \$1.5 billion in the same period.³⁵

All of these investments, as mentioned, must pass through the environmental licensing process, which applies strict timelines to MICOA for appraising and responding to the assessments done. Additionally, the complexity of the projects means that the studies themselves have ballooned into enormous reports running at times into thousands of pages, making an effective analysis almost impossible in the timeframes given.

At the same time, ministry staff members are now being asked to comment on issues that very few have the technical experience to analyse sufficiently. Mozambique does not have the educational courses needed to train people in many of these new and specialised areas, and too few Mozambicans have had the opportunity to study these courses abroad. As a result, the ability of ministry staff members to make informed judgements on highly technical issues, such as the acceptable safety distances for artisanal divers during offshore seismic acquisition or the proper disposal techniques for aqueous and synthetic drilling muds in the absence of an appropriately equipped facility in-country, is necessarily limited.

For these reasons, the following could be important short-term measures to bolster the government's capacity and allow it to make better decisions.

Practicable mechanisms for short-term improvement

Fortunately, there are reasonably simple mechanisms that will almost immediately increase the quality of the environmental and social impact studies, increase society's trust in those studies, broaden their scope to the implementation phases, and help build the capacity of the regulating ministries.

The three tools to be explored are the use of peer review mechanisms, the creation of technical oversight bodies, and the use of biodiversity offsets. All of these mechanisms

could be implemented almost immediately if desired, and as such deliver a quick improvement in many of the issues raised.

Peer review mechanisms for environmental and social impact assessments

Peer review is not a new mechanism either internationally or even in Mozambique. So far its potential has not yet been fully explored, yet it provides a relatively inexpensive and easily applicable way to drastically increase both the quality of the EIAs and the level of trust in them as independent assessments.

Using the definition of the US Environmental Protection Agency, a peer review is³⁶

a documented critical review of a specific ... work product. Peer review is conducted by qualified individuals (or organizations) who are independent of those who performed the work, and who are collectively equivalent in technical expertise (i.e. peers) to those who performed the original work. Peer review is conducted to ensure that activities are technically supportable, competently performed, properly documented, and consistent with established quality criteria. Peer review is an in-depth assessment of the assumptions, calculations, extrapolations, alternate interpretations, methodology, acceptance criteria, and conclusions pertaining to the specific major scientific and/or technical work product and of the documentation that supports them.

The mechanism consists of contracting an independent review panel of specialists to check the quality of the EIA. This can be done first at the pre-feasibility stage, and again when the EIA has been produced. The key aspect of the peer review is that the process is not only independent and transparent, but is also *perceived* to be so. In order for this to occur, it is essential to create an arms-length relationship between the developer and the technical experts. The most effective way to do this would be to establish a stakeholder committee or forum, and then have this committee choose an EIA company to be the official reviewer. The review would then be submitted not only to the stakeholder forum but also to MICOA and to the company elaborating the EIA as formal comments to be incorporated into the final versions.

While the official reviewer would not undertake any primary data collection, it would be expected to perform a series of tasks. At the first stage, namely that of reviewing the pre-feasibility study and the TOR for the EIA, the peer review would be expected to answer questions such as the following:³⁷

- Have the consultants considered all the issues that would render the project impossible from an environmental point of view (the so-called 'fatal questions')?
- Have the consultants identified all the potential impacts of the proposed project, including the indirect impacts?
- Do the TORs cover all the main areas that will need to be studied, geographically and thematically?
- Are real alternatives covered and to be studied in the TORs?
- Is the secondary literature review complete?
- Have the consultants properly identified the data gaps that exist and that will need to be covered by specialist studies in the EIA phase, and are these appropriately reflected in the TORs?

The following opinions could also be requested from this panel.

- Would the TORs comply with international standards such as the IFC's Performance Standard 6?
- What longer-term research would be needed to fill some of the data gaps that could not be done in the scope of the current EIA?
- What cumulative impacts should be considered, and what is the contribution of this new project to those impacts?

At the EIA stage, the peer review panel should look at the draft final report and construct a formal opinion on the following.

- Does the EIA conform to the approved TORs?
- Is the baseline description adequate and complete?
- Have the consultants identified all the potential impacts of the proposed project, including the indirect impacts?
- Were the methodologies used to assess the impacts sufficient and appropriate?
- Have the specialist studies been carried out using acceptable methodologies by recognised specialists?
- Are the proposed mitigation measures proposed sufficient and realistic?
- Do the measures comply with international best practice and the use of the best available technology?
- Are stakeholder comments incorporated into the document or is their exclusion appropriately explained?
- Is the EMP realistically implementable in the project context?
- Are there appropriate mechanisms for readjusting the EMP in function of the real impacts measured?

As mentioned, this is not a new process. It is used extensively in the US, for example, where it is part of the legal framework with clear criteria as to when it must be followed. In Mozambique, the peer review process has been used once in the oil and gas industry, by the South African company Sasol in the case of Block 16 & 19 in Inhambane and Sofala provinces in 2006.³⁸ The process was a great success and led to considerable stakeholder satisfaction with the final report, which made substantial changes to the company's original plans. The peer review, for example, pointed out that no estimates had been made of the impact of a possible oil spill on livelihoods, leading to an additional section on this topic being added to the final report. More importantly, the peer review recommended that, due to a lack of available knowledge, shallow water seismic activity should be postponed and subject to a separate EIA at a later stage, and this recommendation was also accepted.

The key advantage of this process is that it allows MICOA and civil society to receive a project-specific expert opinion on the quality of the study produced, greatly increasing the confidence of both official entities and society at large that the study does not simply reflect the interests of the developer. Seconding where possible specialists from MICOA to this team would also provide the ministry with on-the-job training in this new and complicated technical area. The developer usually covers the costs of this review panel. However, as this is not currently a legal obligation, the developer would have to do it as

a voluntary commitment. In this context it is important to remember that the Equator Principles are not voluntary for their clients, and Equator Principle 7 is quite clear on the need for independent review, so any of the developers who have such financing should welcome the idea as helping them to deliver on their Equator Principles commitments.³⁹

In summary, in the words of the US Environmental Protection Agency, 'Peer review enhances the credibility and acceptance of the decision based on the work product. By ensuring a sound basis for decisions, greater cost savings are realized since decisions will not be challenged as often and extra effort will not be expended to go back and redo the work product. So while peer review is not free, the cost of not doing peer review is usually much more expensive.'⁴⁰

Standing oversight bodies (expert technical councils and forums)

Drawing on this previous experience with peer reviews, and seeing the benefits it can bring, a further area can be identified in which a similar kind of mechanism may make a useful contribution to the implementation phase of a particular project.

As has been mentioned, current Mozambican legislation does not have any institutionalised mechanisms for public review or consultation on the implementation phases of projects – once the land and environment licences have been granted, and the EMP with its predicted impacts has been approved by MICOA, the developer has no more obligations to publicise anything else. No public report is made on the monitoring process, the actual impacts of the project, or how the EMP was modified to take account of the difference between the predictions and reality. There is also no mandated opportunity for public reflection on compensation or resettlement processes.

Since it is often in the implementation phase that the most egregious failures arise, this lack of public oversight is of critical importance and has tremendously negative consequences for the environment, population, companies and governmental agencies entrusted with this task.

An interesting potential solution to these problems can be found in an analogy to the peer review process, ie, an expert technical council (ETC). An ETC could be formed in much the same way as a peer review council, using the same stakeholder forum to select the specialists to sit on the ETC. Once in place, the ETC would have the responsibility to work with the staff of MICOA and/or INP to review and monitor the implementation progress of the EMP, compensation plans, etc. Generally, in either the stakeholder forum or the EMP itself a small number of critical moments for oversight could be identified, in order to determine the scope of the ETC's work. These would be specific phases of activity where risks are particularly high and technical oversight is needed. For the drilling of a test well – the current phase of implementation, for example – the ETC would be on-site for the opening and closing stages, and perhaps on one occasion during the drilling itself. In a key difference from the peer review, however, the ETC would not only look at the documents produced but would also have to make occasional field visits. While this does make it more expensive, it gives the ETC considerably greater ability to both train government regulators and assess the overall quality of information being recorded and submitted to the government.

Since the petroleum industry is geographically concentrated at the moment, one ETC would probably be sufficient for all the operators in the Rovuma Basin. However, given the different stakeholders involved, this would not be the case with operations in Inhambane.

In practical terms, the operating costs of the ETC should be included in the EMPs, which would also identify the precise stages when the ETC monitoring should take place.

The creation of an ETC in this manner could initially be done on a voluntary basis, with it becoming a required part of environmental regulations only if and when it has proven its worth. In essence, both this and the peer review process are analogous to having an independent building supervisor with any public works, something that has already been established in national norms. The advantages for the state are clear: even before technical capacity can be built up in MICOA and the INP, the state gains a source of expert knowledge to inform its decision making, which at the same time provides on-the-job training of government staff. These mechanisms would allow companies to demonstrate that they are adhering to the highest level of compliance, a critically important aspect for meeting the standards of the relevant international financial corporation, the Equator Principles etc., and to do so at a fraction of the financial and reputational cost associated with contracting an independent reviewer to verify their degree of compliance.

Biodiversity offsets and no net loss

According to the Business and Biodiversity Offsets Programme, which has been at the forefront of defining the concept,⁴¹

Biodiversity offsets are measurable conservation outcomes resulting from actions designed to compensate for significant residual adverse biodiversity impacts arising from development plans or projects after appropriate prevention and mitigation measures have been taken. The goal of biodiversity offsets is to achieve no net loss and preferably a net gain of biodiversity on the ground with respect to species composition, habitat structure, ecosystem function and people's use and cultural values associated with biodiversity.

In essence, the concept captures a desire to reconcile development with biodiversity and social goals by requiring that the total damage that is inevitably incurred by any major development project be compensated for by protecting and promoting the same habitats and species in another location close by, so that the end result of the development is either neutral or positive. While this involves complex calculations, it relies on broadly the same skill set as a good EIA, and so the technical capacity for doing an offset should be easily available within Mozambique if the other recommendations are followed.

From a government perspective, offsets provide a means to drive two or three agendas at the same time: encouraging the current boom in the extractive sector and thus permitting the continued growth of the economy while preserving the overall natural beauty (and tourism potential) of the country and safeguarding important ecosystem services such as fishing grounds and other subsistence livelihoods.

Offsets also provide a concrete manner through which to implement certain existing provisions in Mozambican legislation. Offsets can be used to concretise part of article 4 of the Environment Law, specifically the principle of '[r]esponsibility, on the basis of which whoever pollutes or in any way degrades the environment shall always have the obligation to repair or compensate [for] the resulting damage'.⁴² In addition, for the coastal area where most of the current oil and gas exploration activities are taking place, offsets provide a way to implement the recommendations of the Strategic Environmental Assessment for the Coastal Zone, which specifically states that 'EIAs for the hydrocarbon

sector must include a plan for biodiversity compensation in order to neutralize residual impacts'.⁴³

In the corporate sector, offsets are becoming an integral part of the standards according to which top companies are expected to act. At the forefront of this are the new 2012 Performance Standards of the IFC, specifically performance standard 6, which mandates mitigation of impacts 'that can reasonably be expected to result in no net loss and preferably a net gain of biodiversity; however, a net gain is required in critical habitats'.⁴⁴ The 2013 version of the Equator Principles also clearly states that for major projects, where 'impacts are unavoidable, they should be minimised, mitigated, and/or offset'.⁴⁵ Increasingly, companies will have to adhere to these standards in order to meet the rules of their lenders, and as such they would benefit from having a structure in place to facilitate this process.

Within Mozambican procedures, offsets can be incorporated most efficiently in the manner described below. Within the current EIA process, the project developer can request that the TORs for the EIA be expanded to comply with offsets standards. Specifically, the TORs should also include:

- evaluation of indirect impacts;⁴⁶
- clear demonstration of how the proposed measures follow the mitigation hierarchy;
- quantification of the final residual impacts;
- identification and baseline evaluation of potential offset sites; and
- elaboration of an offset implementation plan.

In terms of the potential location for offsets, it is important to note that while a large part of Mozambique has some kind of conservation status, the actual effectiveness of this protected area system is limited by the relevant financing arrangement. Roughly 89% of the funding for the protected area network comes from external sources,⁴⁷ placing the system in a precarious position. However, this weakness provides an opportunity for both the state and the petroleum industry. There is a substantial amount of information available about the biodiversity and social baseline status of the protected areas in Mozambique, as well as a reasonably clear idea of what is needed for their effective management. Additionally, while these areas are already gazetted by the state and their protection status is thus defined, their financial weakness makes a clear case for additionality⁴⁸ for any proposed offset. In short, the protected areas in Mozambique could function as a reservoir of potential biodiversity offsets for companies either wanting or required to carry them out. Furthermore, Mozambique is already endowed with a long-term sustainable financing mechanism, the Foundation for the Conservation of Biodiversity,⁴⁹ which could be tasked with channelling the funds to any offset projects selected.

CONCLUSIONS AND RECOMMENDATIONS

This paper has analysed the current situation regarding the environmental licensing of the oil and gas industry in Mozambique and identified some of its challenges. While legislative weaknesses have been noted, the main purpose has been to outline proposals on how to improve the quality of the environmental and social impact processes without resorting to

additional legislative changes. These proposals include the implementation of peer reviews for environmental and social assessments, ETCs to accompany the implementation phase, and biodiversity offsets.

With better EIAs the Mozambican state would see greater adherence to national laws and thus greater protection for local communities dependent on subsistence natural resource use. The state would also have an opportunity for detailed technical training by accompanying these processes, placing it in a better position to exercise its role as regulator. Lessons learned during voluntary implementation could then be used in updating regulations in future if deemed necessary and useful. The state would also benefit by guaranteeing a stable financing source for pursuing its obligations under the UN Convention for Biodiversity and its own national plans for protecting its natural heritage.

Communities and civil society in general would benefit from the increased transparency of and involvement in the process, as well as from the heightened degree of protection from potential environmental damages. More and better information about the realities of the projects and their implementation will also permit civil society to grow and develop its own capacity to make effective and informed demands on elected representatives.

Finally, the oil and gas companies would benefit, not only gaining credibility with local stakeholders and priceless local knowledge to improve their implementation, but also raising their standards to current international best practice levels, in the process accessing a wider base of potential project financing while reducing their risks.

With no need to lobby or wait for legislative changes, the only obstacle to making these measures a reality is corporate will. To date, public proclamations have been plentiful. What remains to be seen is if they are willing to truly lead the extractive sector in a positive direction.

ENDNOTES

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- 2 Crook L *et al.*, *Natural Gas Master Plan for Mozambique: Final Report*. ICF International, December 2012, P. ES-19.
- 3 *Ibid.*, P. ES-48.
- 4 World Bank figures, see Trading Economics, 'Mozambique GDO', <http://www.tradingeconomics.com/mozambique/gdp>.
- 5 National Statistics Institute, as quoted in Club of Mozambique, *Primary sector in Mozambique employs more than 73 pct of the active population*, 24 April 2013, <http://www.clubofmozambique.com/solutions1/sectionnews.php?secao=business&id=28415&tipo=one>.
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- 8 Environment Law no. 20/97 of 1 October, Article 15(2).
 - 9 Environment Law, Article 4(7).
 - 10 See, for example, the *Natural Gas Master Plan for Mozambique*, *op. cit.*, as well as Radon J (Supervisor), *Mozambique: Mobilizing Extractive Resources for Development*. New York: Columbia University's School of International and Public Affairs, 2013; and the excellent if slightly out-of-date work by Serra C, *Fortalecendo o quadro legal e institucional do desenvolvimento Petrolifero em Moçambique*. WWF Moçambique, 2008.
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 - 13 Resolução do Conselho do Ministros no. 27/2009.
 - 14 Michelet CF *et al.*, *Near-End Review of the Norwegian Support to the National Institute of Petroleum, Mozambique, 2006–2010*. Oslo: Arntzen de Besche Advokatfirma AS, 2009, p. 32.
 - 15 Crook L *et al.*, *op. cit.*, Recommendation 4.6.
 - 16 Under the Environmental Regulations for Petroleum Operations, Decree 56/2010. Note that public consultation is enshrined for all EIAs for large and medium projects, in all sectors (under Decree 45/2004).
 - 17 In the author's personal communication with the Provincial Director of MICOA, he denied ever having seen the map of actual seismic lines collected.
 - 18 The author was one of those 'consulted', in a private meeting with no MICOA members present. The company claimed that the government (MICOA) only needed 6 weeks' processing time, although the original EMP states that a '3D Seismic Method Statement and revised EMP shall be submitted to MICOA at least six months before the planned start of the 3D seismic programme' (Section 9.1.1).
 - 19 See for example, Catarino R, *Monitoria do Plano de Comunicação da StatOil no Âmbito da Pesquisa 3D: Distritos de Ibo, Quissanga e Macomia*. Associação do Meio Ambiente do Cabo Delgado, 2012; and Dimon J & D Ribeiro, *Oil or Development? Results from a Field Study on the Environmental and Social Impacts of Oil Exploration along the Northern Coast*. Justica Ambiental, 2011.
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 - 22 Boutilier R & I Thomson, *Establishing a Social Licence to Operate in Mining*, as quoted on <http://www.miningfacts.org/Communities/What-is-the-social-licence-to-operate/>, accessed 24 June 2013.
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- 33 See Equator Principles, 'About the Equator Principles', <http://www.equator-principles.com/index.php/about>, accessed 24 June 2013.
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- 36 Science Policy Council, US Environmental Protection Agency, *Peer Review Handbook* (3rd ed.). EPA/100/B-06/002, 2006, p. 12.
- 37 Some of these points have been drawn from the Sasol example (see ERM and Consultec, *EIA for Sasol's Offshore Exploration Project in Block 16 & 19, Inhambane and Sofala Provinces, Mozambique*. July 2006). The rest are the author's suggestions.
- 38 ERM and Consultec, *op. cit.* Annex G specifically deals with the Peer Review Process.
- 39 'For all Category A and, as appropriate, Category B Projects, an Independent Environmental and Social Consultant, not directly associated with the client, will carry out an Independent Review of the Assessment Documentation including the ESMPs, the ESMS, and the Stakeholder Engagement process documentation in order to assist the EPFI's due diligence, and assess Equator Principles compliance'. Equator Principle 7.
- 40 *Ibid.*
- 41 BBOP (Business and Biodiversity Offsets Programme), *Standard on Biodiversity Offsets*, 2012, available along with other BBOP documentation at <http://bbop.forest-trends.org/guidelines/>.
- 42 Environment Law, Article 4(7).
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- 48 Additionality is the need to exclude activities that would have taken place even with the project in question, so that one can be sure that these are *additional conservation outcomes*. For example, funding an already well-resourced protected area such as the Kruger National Park would not meet the criteria of additionality, as it is already being protected.
- 49 The Foundation for the Conservation of Biodiversity was formally recognised by the Council of Ministers through Resolution no. 69/2011 of 29 December.

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